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EXAMINER	
PIAZZA CORCORAN, GLADYS JOSEFINA	
ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,378	BEHRE, KURT	
	Examiner	Art Unit	
	Gladys J Piazza Corcoran	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 18-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 18-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/10/02, 1/7/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification Objections

1. The disclosure is objected to because of the following informalities: Page 2, lines 5-15 of the Specification refer to claims that have been cancelled. It is suggested to delete the references to claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 18-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The limitations in claim 18, lines 4-7 are unclear and confusing. It is suggested to amend the claim limitations to recite, --applying a first covering layer to a first side of the flexible metal foil and a second covering layer to a second side of the flexible metal foil, during which process, at each cup-like recess, the first covering layer is applied in a first step to close an opening of each of the cup-like recesses on the first side of the flexible metal foil, and then the second covering layer is applied in a second step to a free end of each of the cup-like recesses on the second side of the flexible metal foil.-- If such amendment is adopted, it is further suggested to amend claim 21 line 2 to recite, --the first and second covering layers--.

5. Claim 22 recites the limitation "the openings of the cup-like recess" in line 6. There is insufficient antecedent basis for this limitation in the claim. It is suggested to amend to --openings of the cup-like recesses--.

6. Claim 22 recites the limitation "the end faces of the recesses" in line 7. There is insufficient antecedent basis for this limitation in the claim. It is suggested to amend to –end faces of the cup-like recesses--.

7. Claim 22 recites the limitation "the end faces of the laminated structure" in line 7. There is insufficient antecedent basis for this limitation in the claim. It is suggested to amend to --the end faces of the cup-like recesses on the laminated structure--.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 18-22, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter (GB 3182703) optionally in view of Smith et al. (US Patent No. 3,086,899).

As to claim 18, Hunter shows a method of forming a multiplicity of cup-like recesses (dimples) in a flexible metal (page 2, lines 13-41) and applying a covering layer (face sheets 1 and 2) to each side of the flexible metal (page 2, lines 59-64).

As to the limitation that the flexible metal is a foil, Hunter discloses that the metal sheet is a thin sheet metal, which is considered to read on a foil. Additionally it is noted

that Hunter discloses that the sheet thickness is in the order of 0.25mm or less, which is also considered to be in the conventional range of the thickness of a foil.

As to the limitation that "during which process, at each cup-like recess, first of all the opening is closed by one covering layer and then the other covering layer is applied to the free ends of the recesses", Hunter discloses that the covering layers are attached to the flexible metal sheet but does not specifically disclose a particular order in which the sheets are attached. One of ordinary skill in the art at the time of the invention would readily recognize that there are only two ways to attach cover layers to a center core layer, i.e. simultaneously applying the sheets or applying one sheet prior to applying the other sheet. One of ordinary skill in the art would also recognize that the easiest and most simple way to attach the cover layers would be to attach one cover sheet and then attach the second cover sheet. It is further noted that Hunter discloses that the flexible metal sheet may have recesses in both the upward and downward directions (page 2, lines 99-103), therefore whichever cover layer is applied first, it will cover the openings of the cup-like recesses and the other cover will be applied to free ends of the cup-like recesses. Additionally, it is noted that it would have been well within the purview of one of ordinary skill in the art at the time of the invention to apply the cover layer over the openings of the recesses and then the cover layer over the free ends of the recesses. Optionally, Smith is cited to show that it is known in the art to apply one covering layer on the center core sheet with recesses where the covering layer is applied to cover the openings of the recesses in order to form the sandwich structure. It would have been obvious to one of ordinary skill in the art at the time of the

invention to provide the method of forming the sandwich panel as shown in Hunter by applying a first covering sheet to one side of the flexible sheet to cover the openings on the recesses and then apply a second covering sheet to the free ends of the recesses as would have been well within the purview of one of ordinary skill in the art and further optionally, since it is known to apply a cover sheet to sheets with recesses by covering the openings in the sheet in order to enclose the recesses as exemplified by Smith.

As to claim 19, the cup-like recesses in Hunter are formed by pressing or deep-drawing (page 4, lines 89-115).

As to claim 20, the cup-like recesses in Hunter are circular (it is noted that Hunter also discloses that other shapes are possible (page 2, lines 54-56). It is well known in the art to form core sheet materials with shapes in the form of an ellipsoid or a sphere or a cylinder or a truncated cone or a truncated pyramid. For example, Smith discloses alternative shapes for core sheet materials (column 2, lines 12-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the core sheet in Hunter with well known and conventional shapes for sandwich panels as exemplified by Smith, only the expected results would be attained.

As to claim 21, at least one of the covering layers is adhesively bonded to the flexible metal foil (Hunter, page 2, lines 59-65).

As to claim 22, Hunter shows a method by forming a multiplicity of cup-like recesses (dimples), which point in one direction, in a flexible metal foil (see discussion above for foil; core sheet 3), forming a laminated structure by applying a covering layer to that side of the flexible metal foil on which the openings of the cup-like recesses are

located (see discussion above for applying the covering to the opening first), applying an adhesive to the end faces of the recesses (Hunter discloses the layers are adhesively joined, therefore one of ordinary skill in the art would readily appreciate that the adhesive is applied to the facing surfaces which are the end faces of the recesses), joining the laminated structure to a metal body sheet (second covering layer), the end faces of the laminated structure being adhesively bonded to the metal body sheet by means of the adhesive.

As to claim 26, the covering layer is an aluminum sheet (page 2, lines 13-21).

10. Claims 23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter optionally in view of Smith et al. as applied to claim 22 above, and further in view of Ellis et al. (US Patent No. 4,980,010), Meier et al. (US Patent No. 6,099,683) and/or Jessup et al. (US Patent no. 5,938,875).

As to claim 23, Hunter discloses that the layers of the panel are attached by adhesive cement, such as epoxy resin, heat cured, or by welding, but does not specifically disclose joining by the application of heat and pressure. It is considered well known in the art to laminate layers with adhesive, in particular epoxy adhesive, for bonding sandwich panels with heat and pressure in order to ensure a strong bond. For example, Ellis discloses a method of laminating sandwich panels where the bonding is accelerated by providing heat and pressure (column 1, lines 39-43). Meier also discloses an example where a sandwich panel is formed by applying heat and pressure to accelerate the bond (column 1, lines 45-50). Finally, Jessup also discloses an example where heat and pressure (through and autoclave) are applied to bond

sandwich panels with adhesive (column 3, lines 35-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming the panel as shown by Hunter by applying heat and pressure to the laminate in order to accelerate the curing of the adhesive and to form a stronger bond as is considered well known in the art and further exemplified by Ellis, Meier, and/or Jessup.

As to claim 24, it is well known in the art to provide a variety of adhesives for adhering parts of a sandwich panel including encapsulated, heat activatable adhesive systems. For example, Jessup discloses one example of an encapsulated, heat activatable adhesive for joining panels. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method as shown in Hunter with well known adhesives in the art including encapsulated, heat activatable adhesives to bond the layers together as exemplified by Jessup.

As to claim 25, it is well known in the art to provide foam systems, which are activated during the joining, that are introduced between the laminated structure and the metal body sheet in order to provide foam in the structural panels. It is further noted, that the adhesive in both Meier and Jessup are foam adhesives that are introduced between the layers prior to joining and then the foam is activated during joining under heat. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming panels as shown in Hunter with foam systems as is considered well known in the art in the structural panel art, additionally, it is known in the art to provide heat activatable foam adhesives that activate during joining as exemplified by Meier and/or Jessup.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys J Piazza Corcoran whose telephone number is (571) 272-1214. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gladys JP Corcoran
Examiner
Art Unit 1733

GJPC